

IN THE CLAIMS

Please amend claims 11, 15, 17 and 23 as follows:

Claims 1-10 (Cancelled)

1 11. (Currently Amended) A method of transmitting a spread
2 | spectrum signal, the method comprising:
3 | multiplying a lower bit rate signal and a first PN-code
4 | sequence to yield a lower bit rate product; and
5 | using a first-second PN-code sequence to spread one of a the
6 | lower bit rate product or a higher bit rate signal to a
7 | predetermined output chip rate for the spread spectrum signal; ~~and~~
8 | ~~multiplying a lower bit rate signal and a second PN-code~~
9 | ~~sequence to yield the lower bit rate product, wherein the lower bit~~
10 | rate product has a chip rate equal to a bit rate of the higher bit
11 | rate signal.

1 12.(Previously Presented) A method of recovering a spread
2 spectrum signal having one of a higher bit rate signal spread by a
3 first PN-code sequence or a lower bit rate signal spread by the
4 first PN-code sequence and a second PN-code sequence, a lower bit
5 rate product of the lower bit rate signal and the second PN-code
6 sequence having a chip rate equaling a bit rate of the higher bit
7 rate single, the method comprising:
8 receiving and demodulation the spread spectrum signal;
9 successively correlating in a first operation the demodulated
10 signal with the first PN-code sequence and then in a second
11 operation with the second PN-code sequence; and
12 determining if the higher bit rate signal is present in the
13 spread spectrum signal by checking a presence of a first strong
14 correlation peak in an output of the first operation and an absence
15 of a correlation peak in an output of the second operation;
16 determining if the lower bit rate signal is present in the
17 spread spectrum signal by checking a presence of at least a weak
18 correlation peak in the output of the first operation and a
19 presence of a second strong correlation peak in the output of the
20 second operation.

1 13. (Previously Presented) The method of claim 12, wherein the
2 first operation and the second operation are carried in respective
3 matched filters.

1 14. (Previously Presented) The method of claim 13, wherein a
2 running average of an output of the each matched filter is obtained
3 in order to synchronize detection of one or more correlation peaks
4 in the output of the respective filter.

1 15. (Currently Amended) The method of claim 14, wherein the
2 running average is determined in accordance with the equation:

3
$$\hat{x}_i^n = \alpha * \hat{x}_i^{n-1} + (1-\alpha) * x_i^n$$

4 where x_i^n is the absolute value of the i th matched filter
5 output sample in an n th databit period,

6 \hat{x}_i^{n-1} is the corresponding i th sample running average at an
7 end of an $n-1$ th databit period, and

8 α is ~~and an~~ averaging gain and has a value $0 \leq \alpha \leq 1$.

1 16. (Previously Presented) The method of claim 15, wherein the
2 averaging gain α has a value > 0.5 .

1 17. (Currently Amended) A spread spectrum communication
2 system, comprising:

3 a transmitter for transmitting a spread spectrum signal, the
4 transmitter including

5 a source of a higher bit rate signal having a higher bit
6 rate,

7 a source of a lower bit rate signal having a lower bit
8 rate,

9 means for multiplying the higher bit rate signal by a
10 first PN-code sequence to give the spread spectrum signal a
11 predetermined output chip rate, and

12 means for multiplying the lower bit rate signal by the
13 first PN-code sequence and a second PN-code sequence to give the
14 spread spectrum signal a the predetermined output chip rate,

15 wherein a lower bit rate product of the lower bit rate signal and
16 the second PN-code sequence has a chip rate equal to the higher bit
17 rate of the higher bit rate signal; and

18 a receiver including
19 means for receiving and demodulation the spread spectrum
20 signal,
21 first correlation means for correlating the demodulated
22 signal with the first PN-code sequence,
23 second correlation means for correlating an output from
24 the first correlation means with the second PN-code sequence,
25 means for determining a presence of the higher bit rate
26 signal in the spread spectrum signal by checking for a first strong
27 correlation peak in the output of said first correlation means and
28 an absence of a correlation peak in an output of the second
29 correlation means, and
30 means for determining the presence of the lower bit rate
31 signal in the spread spectrum signal by checking for at least a
32 weak correlation peak in the output of the first correlation means
33 and a second strong correlation peak in the output of said second
34 correlation means.

1 18.(Previously Presented) The spread spectrum communication
2 system of claim 17, wherein the first operation and the second
3 operation are carried in respective matched filters.

1 19.(Previously Presented) spread spectrum communication
2 system of claim 18, wherein the receiver further includes:

3 means for obtaining a running average of an output of each
4 filter; and

5 means for determining synchronizing peaks in the respective
6 running averages.

1 20.(Previously Presented) A spread spectrum receiver for
2 recovering a spread spectrum signal having one of a higher bit rate
3 signal spread by a first PN-code sequence or a lower bit rate
4 signal spread by the first PN-code sequence and a second PN-code
5 sequence, a lower bit rate product of the lower bit rate signal and
6 the second PN-sequence having a chip rate equaling a bit rate of
7 the higher bit rate signal, the receiver comprising:

8 means for receiving and demodulation the spread spectrum
9 signal;

10 first correlation means for correlating the demodulated signal
11 with the first PN-code sequence;
12 second correlation means for correlating an output from the
13 first correlation means with the second PN-code sequence;
14 means for determining a presence of the higher bit rate signal
15 in the spread spectrum signal by checking for a first strong
16 correlation peak in the output of said first correlation means and
17 an absence of a correlation peak in an output of the second
18 correlation means, and
19 means for determining the presence of the lower bit rate
20 signal in the spread spectrum signal by checking for at least a
21 weak correlation peak in the output of the first correlation means
22 and a second strong correlation peak in the output of said second
23 correlation means.

1 21. (Previously Presented) The receiver of claim 20, wherein
2 the first operation and the second operation are carried in
3 respective matched filters.

1 22.(Previously Presented) The receiver of claim 20, further
2 includes:

3 means for obtaining a running average of an output of each
4 filter; and

5 means for determining synchronizing peaks in the respective
6 running averages.

1 23.(Currently Amended) A spread spectrum transmitter for
2 transmitting a spread spectrum signal, the transmitter comprising:

3 a source of a ~~higher~~ first bit rate signal having a ~~higher~~
4 first bit rate;

5 a source of a ~~lower~~ second bit rate signal having a ~~lower~~
6 second bit rate;

7 means for multiplying the ~~higher~~ first bit rate signal by a
8 first PN-code sequence to give the spread spectrum signal a
9 predetermined output chip rate; and

10 means for multiplying the ~~lower~~ second bit rate signal by the
11 first PN-code sequence and by a second PN-code sequence to give the
12 spread spectrum signal the predetermined output chip rate, wherein
13 a ~~lower~~ second bit rate product of the ~~lower~~ second bit rate signal

14 | and the second PN-code sequence ~~has~~ have a chip rate equal to the
15 | ~~higher~~ first bit rate of the ~~higher~~ first bit rate signal.